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FINAL REPORT
Haiti – Energy Sector Assessment

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Sub Activity 001

Submitted By:



Nexant

AND



Econergy

The Econergy logo features a stylized graphic of three blue and green geometric shapes (triangles and parallelograms) arranged to suggest a mountain or a cluster of buildings, positioned above the word "Econergy" in a bold, blue, sans-serif font.

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ACRONYMS

AfD	Agence Française de Développement
BME	Bureau des Mines et de l'Energie
CIDA	Canadian International Development Agency
CMEP	Council for the Modernization of Public Enterprises
DAI	Development Alternative International
GoH	Government of Haiti
GTZ	Deutsche Gesellschaft für Technische Zusammenarbeit, GmbH
ECHO	European Commission Humanitarian Aid Office
EdF	Electricité de France
EdH	Electricité d'Haiti
ESMAP	Energy Sector Management Assistance Programme
GDP	Gross Domestic Product
GOH	Government of Haiti
ICF/CCI	Interim Cooperation Framework
IDB	Inter-American Development Bank
IPP	Independent Power Producers
LPG	Liquefied Petroleum Gas
OAS	Organisation des Etats Américains/Organization of American States
PPA	Power Purchasing Agreements
TOE	Ton Oil Equivalent
UN	United Nations
UNDP	United Nations Development Program
UNEP	United Nations Environment Programme
USAID	United States Agency for International Development

Executive Summary

The overall objective of the study is to assist USAID by preparing a brief assessment of the energy sector in Haiti and suggesting priority areas for USAID support, in particular those that would link to existing Mission Strategic Objectives in natural resource management and agriculture. This report for USAID/EGAT/EIT and USAID/Haiti, conducted by Nexant, Inc. and supported by Econergy International Corporation, characterizes the current state of the energy sector in Haiti and explored means by which USAID can help support and promote the sustainable use of energy, natural resources and agricultural assets of the country. The study is made pursuant to Contract EPP-I-03-03-00007-00, Subactivity No. 001. It is based on interviews and extensive research completed during a two-week period in February and March of 2005. Finally, this report describes the situation in Haiti as of mid-March 2005, where the political environment is extremely fluid and conditions affecting Haiti's power sector could significantly change in the future.

One year ago this March, an armed rebellion forced Jean-Bertrand Aristide to step down as Haiti's president, triggering an intervention by Canadian military forces (later to be replaced by U.S. troops). In mid-2004, a UN-mandated force took over for the U.S. troops. The events of February–March 2004 had a strong impact on public infrastructure and private property (with losses estimated at 5.5 percent of GDP), the job market, inflation, public revenue and national output (the decline in output this year is estimated at 5 percent of GDP). To make things worse, in September 2004, Haiti was hit by a hurricane. Over 1,500 lives were lost in Hurricane Jeanne. Looting and fighting over scarce food supplies caused the situation to become even worse, with some infrastructure being destroyed. While some semblance of stability has been achieved, much of the decision-making authority and budgetary control remain with the international community.

The situation regarding energy has continued to worsen. Average annual electricity usage per capita is 37 kWh with approximately 10 percent of the population connected, substantially lower than many African countries with similar economic and political issues. EdH's installed electric generating capacity is approximately 223 megawatts (178MW in the Port-au-Prince area and 45MW in the rest of the country). EdH's current cost of generation is on average USD0.15/kWh while electric tariffs are closer to USD0.08/kWh, clearly an unsustainable situation. As a result, new investment and regular maintenance is not occurring and the service situation is worsening. Many private sector entities have resorted to purchasing distributed generation systems to meet their energy needs. This is estimated to be anywhere from 75 to 125 MW of additional capacity.

In order to help Haiti, the international community has agreed to work together under the Interim Cooperative Framework (ICF/CCI) which specifically outlines how the

government (with the assistance of the international community) will again become functional and be fully responsible for providing public services (including energy) and promoting the rule of law.

The current electricity crisis in Haiti is so dreadful and severe that USAID should seriously consider a substantial commitment to reform and rehabilitate the electricity sector of Haiti. USAID should consider supporting energy sector activities in the following areas:

1. Support Institutional/legal reform and development
2. Targeted support for rehabilitation of the physical infrastructure
3. Targeted support for specific secondary cities
4. Support coordination between the other donor organizations
5. Support sustainable management and utilization of alternative energy sources such as biomass and/or solar

Specific interventions are presented in the last section of this document (*Activities for USAID Consideration and Support*).

Failure by the international community to adequately address the energy needs of the Haitian public will likely contribute to the continued instability of local political institutions and the continued destruction of Haiti's forests due to fuel-wood gathering.

Background Information

Haiti's physical infrastructure is in bad shape with basic services such as power, water and telecommunications usually unavailable, particularly outside of Port-au-Prince and other urban areas.

With an annual per capita GDP of US\$361 in 2003, Haiti is the poorest country in the Western Hemisphere. Many statistics are not available for recent years due to the interruption in traditional government functions. The country had a population of 8.4 million and a life expectancy of 53-58 years in 2003. Real per capita GDP fell an average of 2.4 percent per year in the 1980s and continued to decline in the 1990s at an average annual rate of 2.6 percent (with no growth in the 2000-2003 period). In 1990, the U.S. Department of Labor put the unemployment level at 80%. The actual level, which ranges from 50% to 80%, accounts for the disguised unemployment, which is prevalent in the informal sector (street vendors, and so on).

Half of the population do not have access to clean drinking water and only 28 percent has access to decent sanitary conditions. Haiti has the highest incidence of HIV/AIDS (five percent) outside of Sub-Saharan Africa. Sixty-five percent of the population lives under the poverty line, and the literacy rate is approximately 39 percent, but this statistic is hard to estimate under current conditions.

Ninety-seven percent of the country has been deforested.

Inflation averaged 17 percent and the fiscal deficit (excluding grants) averaged 3.1 percent of GDP. The recent deficits were financed primarily by Central Bank advances, capital contributions from the international community, as well as by the accumulation of external arrears. The public sector deficit began to increase in 2000 due to higher government spending, cutbacks in foreign aid, reduced economic activity, and widespread tax evasion. This has been compounded by political uncertainties and insecurity, which have impacted investment and economic growth substantially. During the last five years, remittances and official donor aid from multilateral institutions, the United States and Europe have represented the major source of hard currency for Haiti.

Recent Political Events

Since the 1986 collapse of the Duvalier regime, the recent history of Haiti has been tumultuous at best and often bleak. The Duvalier regime was in power for thirty years before being replaced by a constitutional democratic government in 1987 with elections following, raising the hopes of the public for an improved future. Unfortunately, the 1991 coup suddenly interrupted this democratic process and resulted in an international embargo. This embargo severely affected the population and economy. During this period the textile sector, a large contributor to state tax revenues and responsible for over

three quarters of export revenue and a significant share of employment, suffered greatly. Tax collection and the control of public expenditures weakened considerably, and the maintenance of economic and social infrastructure was almost abandoned¹. In 1994, the United Nations Security Council authorized a multinational force to return the democratically elected government to power. The UN forces left in 2001.

In early February 2004 an insurrection in the town of Gonaïves transformed into an armed rebellion that quickly spread to secondary towns across the country. The insurgents quickly took control of a large part of the country's northern region. This led to the resignation and departure of President Jean-Bertrand Aristide. Aristide had originally risen to power on a wave of popular support, but the latter years of his administration had been filled with accusations of corruption and support dwindled. He is now exiled in South Africa.

After Aristide left, the country fell into a state of anarchy causing the UN Security Council to approve a resolution authorizing the deployment of another multinational force. A number of public and private assets were destroyed or looted, resulting in considerable damage that will have a major impact for years to come. In April of 2004, the UN Security Council approved a new resolution, the United Nations Stabilization Mission in Haiti (MINUSTAH), which is still in place today (currently made up of Chilean forces). This mission's mandate is to support the transitional government in reestablishing security and stability. Their responsibilities are to organize elections, reorganize the police force, and promote political dialogue and reconciliation between the many political factions. This process has led to the development of the Interim Cooperative Framework (ICF/CCI) which specifically outlines how the government (with the assistance of the international community) will again become functional and be fully responsible for providing public services and promoting the rule of law.

¹ Source: Interim Cooperation Framework Document.

The Energy Sector

Per capita energy consumption in Haiti is one of the lowest in the world. Approximately 10 percent of the population (less than one million people) has access to electricity. The energy sector is characterized by several factors that impede sound fiscal management and growth, including: government ownership (Électricité de Haiti, EdH) and management (in many cases blatant interference); lack of formal laws, rules and regulations that guide rational energy markets and establish property rights (drafted but not implemented); weak and ineffective management of national energy resources; lack of investment; and prices well below the true cost of production and delivery.

Institutional Structure

It should be noted that the regulatory structure as outlined in government legislation and regulations is not currently functioning as intended, due to recent political and natural events and the increased role of donor agencies in the day-to-day business of the government.

At present, the Ministry of Haitian Public Works (TPTC) is the lead government agency in reconstruction activities, which is reflected in the size of their budget relative to other agencies. In coordination with the Prime Minister's Office and international donors, TPTC is coordinating much of the energy sector activity. While TPTC does not have direct authority over other agencies such as the Bureau for Mines and Energy or the Ministry of Environment, these institutions currently do not have adequate budgets to manage their traditional portfolios and thus do not have much decision-making authority.

Tariff increases are determined by the Bureau for Mines and Energy, but this is widely seen as a political decision and thus is determined in cooperation with the Prime Minister's Office.

Development of a reliable power system in Cap-Haïtien and Jacmel, providing electricity in sufficient quantities at affordable prices, is the responsibility of Électricité d'Haïti (EdH). In its efforts to modernize Haiti's parastatals, the GOH passed in October 1996 the law on the modernization of Haiti's public enterprises. Mandated by the law, the Council for the Modernization of Public Enterprises (CMEP) was established in December 1996 by Presidential Decree. Linked with this was the passage of an electricity law to reform this sector. The Electricity Law prepared by CMEP and dealing with the regulatory framework for the modernized electric sector addresses only the reform of EdH and does not address the need for service to areas outside of EdH's current service area. This legislation also lays out a strategy to establish an electricity regulator, but to date, this has not been implemented.

Power Generation

EdH's installed electric generating capacity is approximately 223 megawatts (178MW in the Port-au-Prince area and 45MW in the rest of the country), but production is largely going to waste due to the poor condition of generation and transmission equipment, silting at the Péligre Hydroelectric Facility, and a lack of regular maintenance². Of the 632 GWh annual production average electricity usage per capita is only 37 kWh (due to the high losses), substantially lower than many African countries with similar economic and political issues as Haiti's.

Table 1: Generation facilities in Haiti, MW

Facility	Owner	Type of Facility	Installed Capacity (MW)	Available Capacity (MW)
Carrefour	EdH	Thermal	50	24
Varreux I	EdH	Thermal	50	15
Varreux II	EdH	Thermal	21	6
Peligre	EdH	Hydro	60	8.5
Guayamouc	EdH	Hydro	22	N.A.
Small-scale hydro	EdH	Hydro	~20	N.A.
EdH Subtotal			223	
Jacmel (CIDA)	Concession	Thermal	4.3	4.3
Private Generation ³	Private	Thermal	75-125	N.A.
Subtotal			79.3-129.3	
Haiti Total			302.3-352.3	

Average cost of generation for EdH-owned units is reported to be US \$0.15/kWh (with higher costs reported for some power purchased from independent generators). This is well above the cost in the U.S., but similar to the cost of other Caribbean island nations. Current EdH tariffs for electricity for residential, commercial and industrial buyers average at US \$0.067-0.09/kWh, making the sale of electricity unprofitable⁴.

Haiti has several separate grids that each feed a separate region in the country. There is no interconnection between these separate grids. Therefore, electricity service is unevenly distributed among the population and only a small fraction of the country outside of Port-au-Prince benefiting from regular access. Port-au-Prince is fed by the hydroelectric power

² Some authorities have the national total installed capacity at closer to 180 MW. This difference is likely based on the different assessments of the condition of some generating units. It should also be noted that there are many micro- and mini-hydroelectric facilities that may not be included in these estimates

³ Source: Haiti Country Commercial Guide FY 2004

⁴ This price is based on data from the U.S. EIA and represents energy end-use prices including taxes, converted using exchange rates. Specific prices cited were USD0.087 and USD0.067 for 2000 and 2001 respectively.

station of Péligre (approximately 40 MW) and by the power stations at Varreux and Carrefour. EdH is also supplied with power from the private sector generator SOGENER. Supplies become unreliable during the dry season from December through March, when hydro production declines.

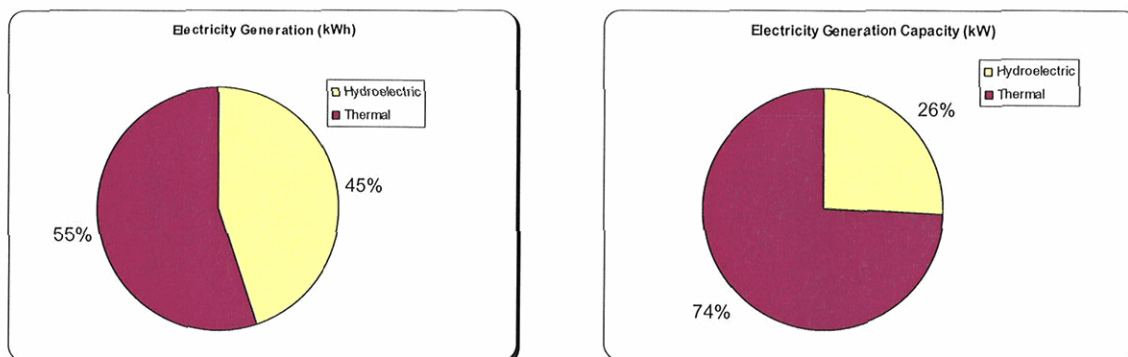
Estimates of installed private generation capacity are around 75-125MW.

Over US\$125 million have been spent on refurbishment of general generation capacity since 1994, but distribution coverage and service quality remain low. The Canadian International Development Agency (CIDA) in 2000 financed the refurbishment of generation capacity in the city of Jacmel (operated by Hydro-Quebec), which resulted in 24-hour electricity service.

Status of current energy infrastructure

EdH and its suppliers have less than 54 MW operational capacity owing to lack of proper maintenance and investment. Utilization of existing thermal capacity is extremely low, as evident from the charts below.

Figure 1: Energy Generation, 2001



Source: EIA, International Energy Annual 2002

In general, most of the thermal generation facilities are in poor shape; almost all are in need of major repair. Of the generation facilities in the Port-au-Prince area, Varreux I & II are in better shape than Carrefour (total of 6 generation units, one of which is no longer operational), but only marginally so. But in general, the equipment is about three to four generations behind current mainstream technology and is highly inefficient. All units are in need of substantial maintenance.

Of the two major hydroelectric facilities in the country, Péligre (with a total 60 MW of installed capacity) is in most need of attention. Two of the 20 MW turbines are not

working due to low water levels. The lake is severely silted due to extreme run off from areas around the lake and rivers flowing into the reservoir. With low rain levels and the current silting problem, there is only enough water to run one turbine, which is now supplying 8.5 MW of capacity. Estimates indicate that the reservoir is approximately 50 percent silted. If the reservoir is not dredged, the power plant will reach the end of its useful life in the next few years⁵. Unrelated to this issue, estimates indicate that the facility only has 10-12 years of useful life remaining. Any restoration program for this facility must also be complemented by a strict reforestation and soil conservation strategy in the surrounding watershed, otherwise the reservoir will quickly become filled with silt again.

The state of the other major hydroelectric facilities, Guayamouc, and the other smaller hydro facilities is not known, but it is reasonable to believe that their status is similar to the thermal units and Péligre.

Delivery of power is extremely problematic. The country does not have an interconnected national electric grid system; transmission and distribution technical losses run 20%; theft of power accounts for another 25% loss. In short, for every 100 kWh put into the system (past the busbar), only 60 kWh make it to final paying consumers⁶. Even then, less than fifty percent of the connected customers pays their electricity bills.

Electricity grids (generally speaking) consist of two primary parts: Transmission (high voltage) and Distribution (lower voltage). Power plants are connected to the Transmission system through switches that in most countries are managed by a computer-based SCADA system. In Haiti this system is manual. Inefficiencies and losses occur when a power plant comes onto the transmission system (turned on) without proper synchronization.⁷ As a result of this effect, along with other technical losses and theft, EdH is only able to recover the cost of about half of the generated electricity.

The primary distribution system carries electricity directly from the substation, at a lower voltage, into neighborhoods and business areas where the voltage is again reduced through small transformers (secondary distribution system) mounted on the poles to individual homes or businesses. Suggs (see below) reported that the physical transmission equipment is in relatively good shape, but the distribution systems (both the primary and secondary) are in poor shape, which accounts for heavy line losses, at about 20 percent⁸.

⁵ Source: Suggs, 2004.

⁶ Source: Nexant/USAID Report, 2004.

⁷ Source: Ibid. If the electric current from the three phases is not synchronized when this happens, the resulting surge is forced back to the generators causing problems with the equipment and some loss of the generated power.

⁸ A typical power company in the U.S. will have about seven to eight percent line losses.

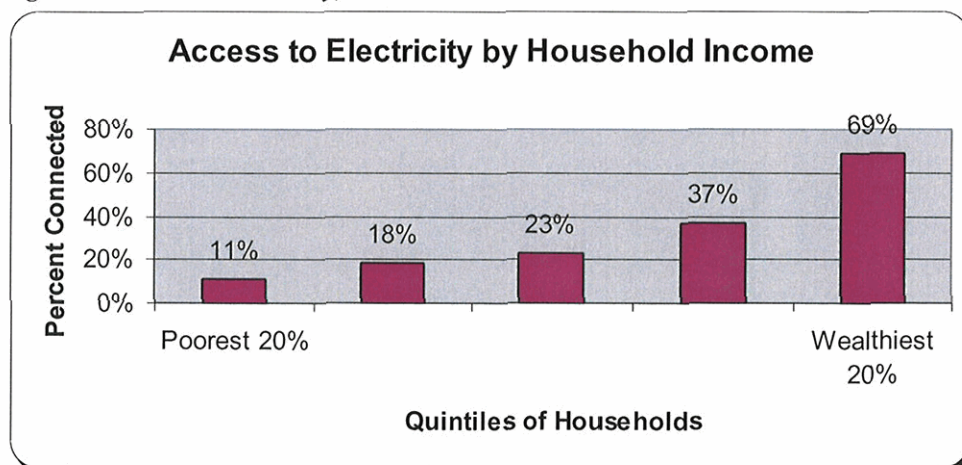
Cost evaluations for the upgrade of major facilities have been outlined for the U.S. Ambassador (by Robert Suggs) and for Agence Française de Développement (AfD) by EdF. The Suggs cost estimates have already been provided to USAID and the AfD estimates will be provided when they become available.

Energy Consumption: Patterns of fuel usage

There is a lack of available current information on the fuel consumption patterns in Haiti due to a malfunctioning government for much of the last 10 years. While no extensive study has been completed in recent years, the World Bank's Energy Sector Management Programme (ESMAP) financed such a study that culminated in a final report in 1991. Although the information is dated, we concluded that the general trends, information on rural energy consumption, and the consumption of biomass materials (fuel-wood and charcoal) have not changed dramatically and thus the report provides a relatively good indication as to the current *general* fuel consumption patterns in Haiti.

The fundamental assessment of this study states that only a small fraction of Haiti's rural population has access to modern commercial energy resources, with the one exception being kerosene used for lighting. Other liquid fuels and electricity are used by a very small segment of the total population, almost exclusively in urban areas. Even the richest 20 percent of households is not close to a 100 percent electrical connection rate (See Figure 2 below).

Figure 2: Access to electricity, 2003

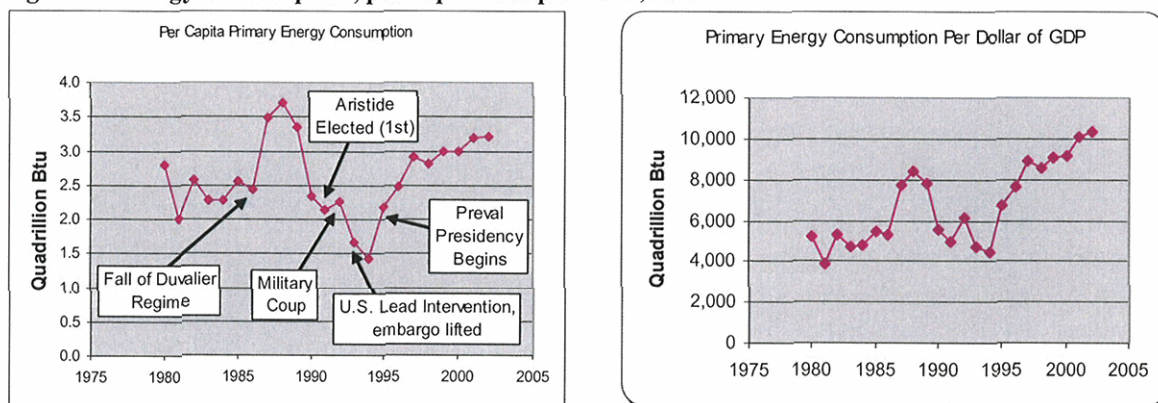


Source: IHSI, Household Living Conditions Survey, draft report, 2003

This lack of access to modern fuels has an impact on the population's ability to generate income. An initial review of per capita energy consumption statistics (see below) may lead to the conclusion that the citizens of Haiti are getting the benefits (higher quality of living, efficiency gains, and longer, nighttime, periods of productivity) associated with more energy consumption. Unfortunately, that is not the case. As is indicated in the second chart, since 1995 energy consumption per unit of GDP has increased. In other

words, it takes more effort (and electricity) annually to get the same unit of GDP as the previous year. It is likely that this is due to the increase in inefficiency and losses associated with generating and delivering electricity. Thus the country must produce more electricity annually just to keep GDP levels constant.

Figure 3: Energy Consumption, per capita and per GDP, 2002



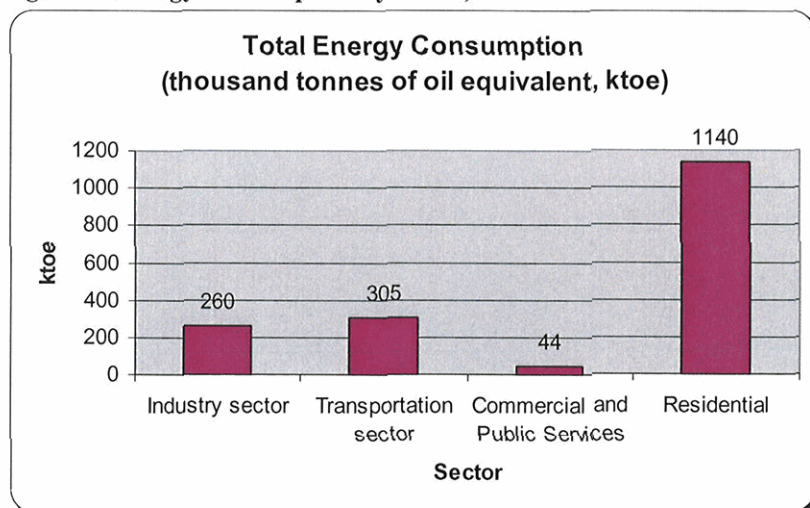
Source: U.S. EIA, International Energy Annual 2002

These trends are further compounded by the fact that most energy consumption is not for productive purposes (industrial and commercial), but rather for residential use. Residential energy consumption represents well over half the total energy consumed in Haiti (followed by the industrial and transport sectors). The commercial sector, once a major consumer, now represents only a small share due to the shutdown of many major enterprises (See Figure 4 below).

It should be noted that biomass fuels (fuel-wood, charcoal and to a much lesser extent bagasse⁹) are not only a major fuel source for the residential sector but also the industrial sector⁹.

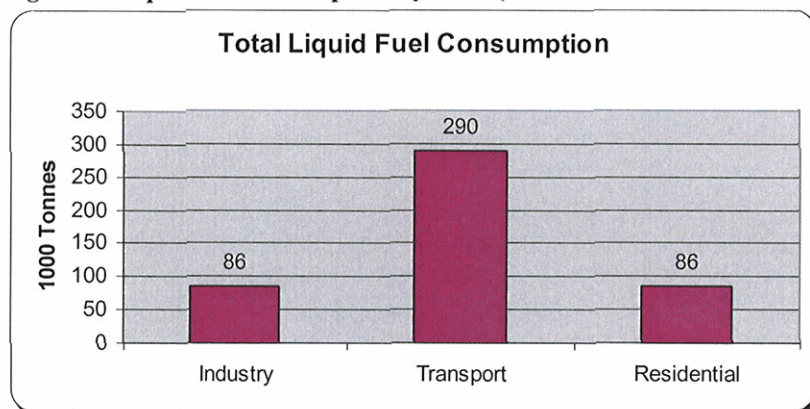
⁹ Bagasse, the waste product from sugar and rum production has substantially decreased in recent years and as a result may no longer be a viable source of fuel for power generation.

Figure 4: Energy Consumption by sector, 2002



Source: IEA Energy Statistics

Figure 5: Liquid fuel consumption by sector, 2002

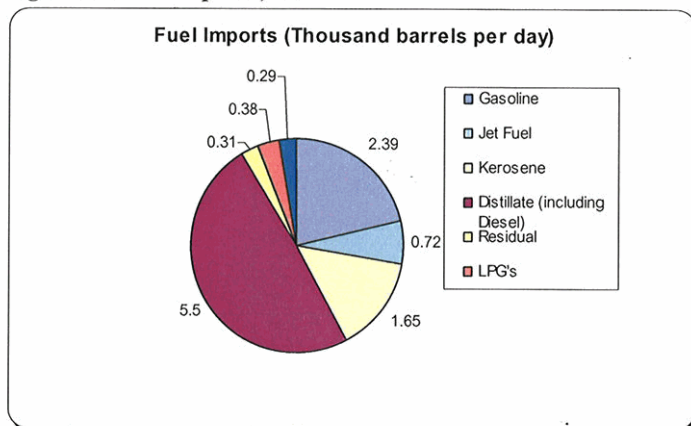


Source: IEA Energy Statistics

It is important to note that Haiti does not have any domestic supplies of liquid fuels (or other “modern” fuels) and therefore must rely on imports. This is mainly used for power generation and transportation. Kerosene is largely used for lighting of houses. Much of the other fuels are used for other commercial and residential applications (See Figure 6 below).

At present, the country does not use any significant quantities of coal.

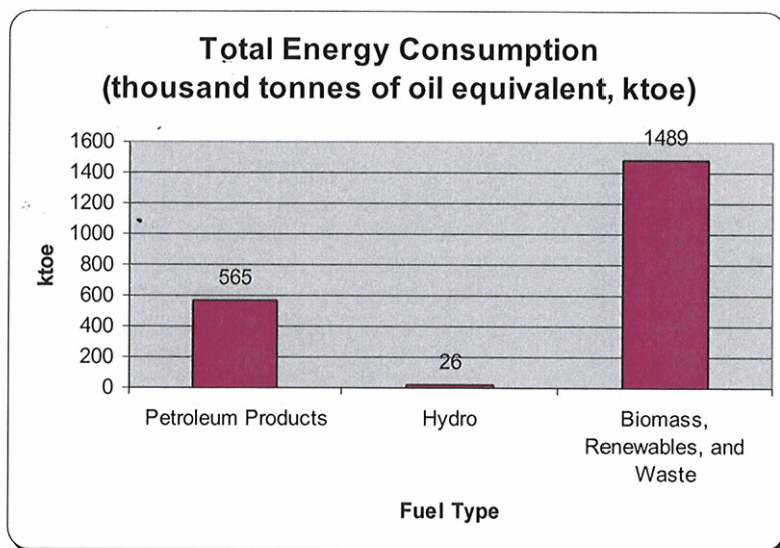
Figure 6: Fuel Imports, 2001



Source: U.S. EIA, International Energy Annual 2002

While electricity and liquid fuels represent an important source of energy, biomass represents the largest fuel source in the country in both rural and urban areas (See Figure 7 below). It should be noted that the majority of the fuel under the “biomass, renewables (non-hydro) and waste” category is fuel-wood and charcoal,

Figure 7: Energy Consumption by fuel type, 2002



Source: IEA Energy Statistics

Fuel-wood and Charcoal Consumption

Extensive use of charcoal in Haiti's cities is, to a very large degree, an indirect consequence of the high LPG (known as “gas” in Haiti) and other fuel prices which result

from current supply and distribution (monopoly) arrangements and international prices¹⁰. In addition, after the fall of the Duvalier regime, charcoal production expanded due to the reduced oversight of the country's natural resources.

Charcoal is distributed through a decentralized urban retail and wholesale network. Distributors bring in supplies from the countryside to the greater Port-au-Prince region. Approximately one-third of the charcoal consumed in the Port-au-Prince region is transported by boat from other parts of the country; the remaining supply is delivered by truck or other means of road transport. There is a system of warehouses and local sales outlets throughout the urban area. Much of this supply system is managed by women.

The ESMAP analysis shows that under normal conditions of supply, LPG becomes the best financial option for the consumer and the best economic option for the country (electricity was not examined). Market studies underscore that LPG is also the fuel which is most likely to successfully substitute for charcoal in urban Haitian households: the market potential is for conversion of 25 percent to 50 percent of households in the capital depending on which pricing assumptions are used, as compared to a potential market share of less than 10% for its direct competitors, which are kerosene and electricity^{11,12}.

The table below (Table 2) outlines the last complete survey conducted of the energy consumption (including fuel-wood and charcoal). While this data is clearly outdated, we can see that at the point of relative prosperity in Haiti's recent history (1985), fuel-wood and charcoal represented over three-quarters of the country's fuel resource. If we take into account the dramatic decrease in commercial activity during this time, this percentage still represents a large share of the country's energy consumption.

Table 2: Energy Consumption, 1985, (Thousand TOE)

Fuel Type	Residential	Industrial	Transportation	Commercial	Public	Total
Coal		36.5				36.5
Petroleum Products	17.4	49	121.5			187.9
LPG	2.7				1.2	3.9
Electricity	10.1	11.1		1.2	3.1	25.5
Charcoal	88.9	1.5				90.4
Fuel-wood	635.1	49.8		286.5		971.4
Bagasse		86				86
Total	754.2	233.9	121.5	287.7	4.3	1401.6

Source: ESMAP, 1991, Household Energy Strategy.

¹⁰ Source: ESMAP, 1991, Household Energy Strategy.

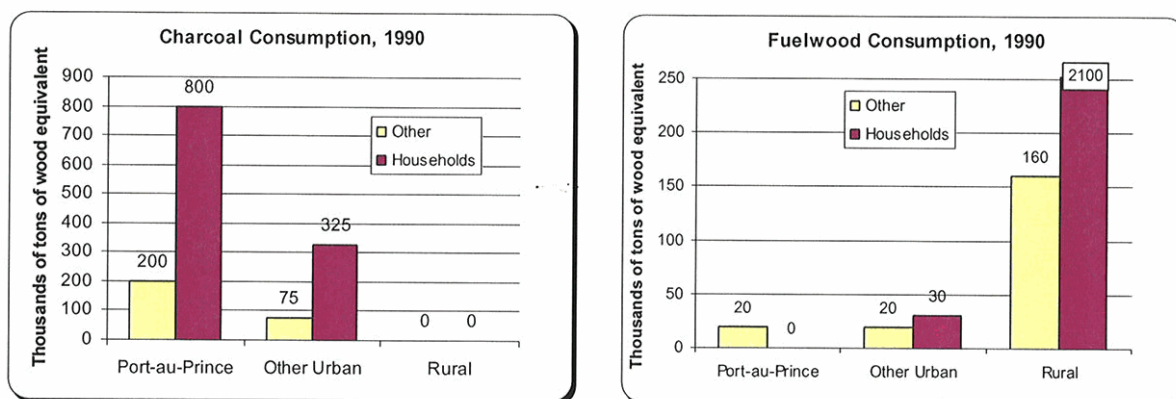
¹¹ Ibid.

¹² It is not clear how the current increase in the price of oil and oil products (as well as the decrease in hard currency in the country) in recent years would affect this analysis. One can expect that at a minimum, the competitiveness of gas would decrease.

Three major conclusions were presented in the ESMAP Study:

- Charcoal is highly important. While it is consumed by less than 30% of the population, it represents 40% of the demand for wood.
- Non -residential charcoal consumption is highly important. It is estimated to represent approximately 20% of the total charcoal consumption.
- Residents in Port-au-Prince are large charcoal consumers, accounting for two-thirds of national consumption.

Figure 8: Charcoal and Fuel-wood consumption, 1990¹³



Source: ESMAP, 1991, Household Energy Strategy.

Industrial users, such as guildives (small companies producing sugar and alcohol) and essential oil factories, are usually supplied with wood from fruit trees (mangos, avocados), as these are abundant and often viewed as useless, they represent a major share of the industrial consumers¹⁴.

Électricité of Haiti, EdH

Created in 1971 to provide Haiti with electrical power, EdH was set up as an autonomous parastatal company that holds the monopoly for the generation, transmission, distribution and marketing of electricity in the country. However, it has been unable to ensure today's subscribers a service of even minimal quality. Since the collapse of Duvalier's regime, EdH has been shaken by coups; the embargo between 1991 and 1994 that paralyzed the major part of its infrastructure because of the lack of spare parts; forced acceptance of

¹³ One flaw in the study may be related to the method for recording charcoal consumption. Specifically, in the case of rural charcoal consumption, consumption is listed as zero. It is difficult to imagine that there is zero charcoal consumption in rural area (even if fuelwood is freely available). Further, direct evidence from groups working in Haiti has indicated that many rural towns use sizable amounts of charcoal.

¹⁴ It is not clear how the recent problems of the last five years have impacted these industries. Energy consumption by these companies and factories may be substantially reduced.

politically negotiated contracts; and the departure of qualified staff to the U.S. and Europe. The return to a democratically elected government in 1994 did not improve EdH's situation; quite to the contrary, the restored populist government interfered and forced on EdH disastrous energy purchasing contracts that contributed to the financial problems of the utility. As a result, today there are many "extra-" regulatory activities that supply energy to small communities.

EdH lacks the political will, muscle and incentives to collect bills and control theft. As a result, EdH lacks adequate funds to pay employees and suppliers and operate in an efficient manner. At present, EdH is dependent on financial support from the government and international donors (most notably USAID). EdH's financial and technical situation is so dire that they must consume several gallons of fuel to generate the sufficient receipts to buy one gallon of it¹⁵. As a result, EdH has resorted to stripping operational equipment to keep key units in operation.

EdH finds itself in a catch-22: its inability to finance proper maintenance and invest in electricity infrastructure has resulted in large technical losses and associated increased costs. Its inability to provide quality service has encouraged massive theft. The resulting lack of revenue has made it impossible to provide quality service, thus bringing EdH back to the beginning. This has been the case in Haiti for more years than most government and EdH officials would like to admit. As a result, the company is running down their equipment at an alarming rate, making the eventual necessary capital investment program all the more expensive.

In EdH's attempt to address this dilemma, during the 1990's it worked with the Inter-American Development Bank and the International Finance Corporation to prepare the company for privatization. The major goal was to separate the company's debt from its assets and identify a buyer willing to bring in the needed investment to modernize the system and expand electricity access. Each of these efforts failed. Discussions under the ICF/CCI have again broached this idea, but the IDB and IFC have shown little interest in taking on the task of facilitating (and financing) this process.

In the near-term, EdH continues to have problems delivering energy and thus has had to sign power purchasing agreements with independent power producers (IPPs) - Sogener, Alstrom, and formerly Aservin. The price of this electricity is seen as exorbitantly expensive (they exceed tariff rates) and accusations have been made regarding the negotiation process that took place between the former government and these IPPs (EdH was not involved).

Sogener provides a regular supply of electricity (provided they are paid) to Cap Haitien, Gonaives, Les Cayes and Petit Goave. It has been reported that Sogener is being paid USD 0.18/kWh for this electricity (2004). It is not clear if this contract and price are still in place. A similar IPP contract was also set up for Port-au-Prince, with Aservin, a U.S.

¹⁵ Source: ICF/CCI Energy Thematic Group Report, 2004.

based wholly-owned subsidiary of a Colombian Company. Aservin entered into an agreement with Alstrom Power Rental (Alstrom) to supply and install the generation equipment. Aservin went into default with Alstrom and as a result Alstrom took over operation of the equipment and is now receiving USD0.13/kWh for supplied electricity.

While these contracts and the firms associated with them seem highly suspect, Alstrom has signaled their willingness to negotiate a new long-term contract wherein plant personnel would be hired to operate new generation equipment and would receive training in operations and maintenance, and the plants could revert to EdH after the contracted period. In the first agreement, Alstrom would also install automatic “tie-ins” on the six locations along the transmission system to reduce the transmission problems.

Energy consumption impact on the environment

Haiti's environmental challenges are directly attributable to its population growth, as well as its adverse economic situation, both of which place desperate demands on lands, forests and other resources for agriculture and fuel. These environmental challenges have been so detrimental to the landscape that little remains of Haiti's once vast forest cover. Haiti's natural resources are undergoing a process of serious degradation. This has had an immediate observable and often irreversible impact, most notably to soil loss and a decrease in agricultural yields. These problems have arisen due to many factors, including: demographic growth, poor agricultural techniques, irregular land tenure practices, and most notably wood-fuel and charcoal consumption. The former Duvalier government and the subsequent governments have not been willing or able to develop a program to address these problems.

Little direct data is available on the impact of fuel-wood and charcoal consumption on the resulting deforestation rate, but the causal effect seems obvious. A rapid growth in charcoal production occurred after 1986, when public control over forest exploitation ceased in Haiti. Organizations mandated with this responsibility also reported that any state forest resource management programs were difficult to implement because it was almost impossible to monitor state lands and restrict access to fuel-wood collectors. In order to address this issue, a large-scale plantation approach was attempted to provide an alternative source of fuel-wood, but this was abandoned due to the lack of a reasonable financial return for the plantation managers.

The impact of this forest mismanagement became clear during Hurricane George in 1998. The absence of forest cover, which could have absorbed some of George's torrential rain, resulted in disastrous effects for the farmers south of the Péligre Hydroelectric Dam on the Artibonite plain. The mounting water level in the Péligre Lake threatened to burst the hydro-electric dam, and the managers were forced to open the emergency flood gates. A wave of water was unleashed, and, fed by storm run-off, it swept through the Artibonite valley towards the sea. By the time it reached the plain, the flood was chest-high, and livestock and crops were washed away.

There must be a reduction in fuel-wood and charcoal consumption for a successful reforestation strategy. If USAID designs an energy sector project targeting the household energy sector, it must address environment degradation. A strategy of this nature would reinforce USAID's current reforestation and agriculture strategy, while also directly benefiting rural and urban communities.

The Ministry of the Environment and the Ministry of Agriculture, Natural Resources and Rural Development are jointly responsible for environmental management.

Donor Activities

The combined effect of US\$2.6 billion in external aid and remittances led to significant improvements in certain social indicators between 1994 and 2000, particularly in the fields of education/literacy, infant malnutrition and improved access to clean water. During this time, several of the major development institutions discussed plans for the restructuring of the energy sector with the government of Haiti, but few activities actually moved forward. Outside of these conversations and several studies, very little was accomplished until 2004.

After the rebellion and subsequent international intervention, it was clear that the government and EdH could not manage to provide even limited energy services without assistance from the international community. As a result, the international community developed the Interim Cooperative Framework (ICF/CCI) that outlines a strategy to meet the short-term and longer-term (two years) needs of Haiti. One segment of this was a plan for the energy sector. In general, most development institutions are working within the recommendations of this Framework.

Interim Cooperative Framework (ICF/CCI)

Under the Interim Cooperative Framework, an Energy Sector Thematic Group was set up to develop a strategy to meet the near- and long-term development needs of the Haitian energy sector. The near-term activities (six-months) focus on the continued operation of current generation assets and an improvement in the general quality of service. USAID is currently contributing to this near-term goal by providing the financing necessary to purchase fuel for generation facilities in the Port-au-Prince region. The longer-term actions include: an overall improvement in the quality of service; development of an institutional reform process; and a program to restructure the energy sector (including EdH).

Box 1: Activities of the ICF/CCI

Near-Term: Restore electricity service

- Purchase of fuel for Port-au-Prince
- Purchase of lubricants for generation facilities
- Purchase of spare parts necessary for the operation of the transmission and distribution network (Estimate: USD 4.36 million)
- Rehabilitation of current operational capacity installed (so that generation can take place at an economically recoverable rate)
- Purchase of electrical power from private operators (SOGENER)
- Provide financing (working capital) necessary for the operation of EdH until the company is once again profitable (Estimate: USD 41 million)
- Review of EdH's financial situation and identification of its outstanding debts
- Audit of EdH financial statements

- Preparation of a plan to streamline EdH staff (including a support fund for laid-off staff)
- Preparation of a management contract for the operation of EdH and selection of new managers (Estimate: USD 300,000)

Near-Term: To improve the quality of service in Port-au-Prince

- Set up of branch offices for EdH
- Rehabilitation of feeder transmission lines to industrial and hotel customers, as well as the airport
- Implement an aggressive strategy to reduce losses (both technical and theft) and launch a public awareness campaign
- Reproduce the CIDA independent operator model at Jacmel in Haitian Cape, Les Cayes, and Gonaïves

Longer-Term: Restructure EdH and improve the overall management of the Haitian energy sector

- Set up and implement a five-year management contract at EdH
- Develop a five-year investment plan for the entire energy sector
- Develop a strategy for human development and training at EdH
- Restructure EdH's debts to allow for adequate working capital necessary for orderly operation in the near-term

The current management team at EdH will not produce the required improvements to the energy situation without major changes. The overall success of the strategy suggested by the Energy Thematic group is dependent on the creation of a five-year management contract for EdH. Without this, core investments and rehabilitation projects will not be implemented. This is perhaps the only way EdH will become an effective company. In addition, outside expertise is also needed at the Ministries to ensure better management and establishment of a free and fair regulatory system to supervise all the power, fuel, and lubricant purchasing transactions.

The total amount of the activities planned for the period from July 2004 to September 2006 is estimated to be **USD 193.51 million**. This covers:

- USD 13.27 million for the period from July to September 2004
- USD 67.83 million for the Haitian fiscal year 2005
- USD 89.43 million for the Haitian fiscal year 2006¹⁶.

¹⁶ The reader will note that a total of the annual amounts do not equal the cited USD 193.51 million. The ICF/CCI Energy Thematic Group source document did not clarify why.

Bilateral and Multilateral Agencies

Several international organizations are currently working in Haiti to address the energy sector problems. Most are working under the ICF/CCI described above, but many are operating autonomously. The table below (Table 3) outlines in general terms the activities of those organizations currently operating in Haiti. *Annex 2: Donor Activities*, outlines these activities in more detail.

Table 3: Energy sector activities of other donor agencies

Organization	Current Activities	Future Activities
AfD	€2,500,000 was provided to rehabilitate the generation units that supply Port-au-Prince	An EdF study was just completed outlining near-term needs for the energy sector. New activities for AfD should be forthcoming
CIDA	Rehabilitation Project in Jacmel	Looking to replicate Jacmel model in other secondary cities. Looking for donor partners
The Inter-American Development Bank (IDB)	Worked on several activities to restructure the energy sector, but none was either implemented or turned into a loan	No new activities planned at this time
International Finance Corporation (IFC)	Considered supporting the restructure of EdH, but the project did not happen	No new activities planned at this time
The Organization of American States (OAS)	Supported several studies looking at the Haitian energy sector	No new activities planned at this time
World Bank	IDA support for current budget needs and ESMAP is completing a fuel-wood study.	Planning to open a local office in March
UNEP/UNDP	Coordination of ICF/CCI process	Continued coordination of ICF/CCI process

It is important to note that the total commitments made by these donors do not match the financial requirements (USD 193.51 million) identified by the ICF/CCI Energy Thematic Group. Without the participation of some of the key development banks (in the form of grants or concessional loans), it is unlikely that the country will be able to implement an energy sector rehabilitation strategy that will meet the needs of the country.

Activities for USAID Consideration and Support

This section provides a list of activities for USAID to consider in an effort to support the rehabilitation and reform of the Haitian energy sector and, where possible, provides specific concepts for USAID consideration. When developing these intervention activities, economic growth, environmental improvements and local rural community empowerment benefits were taken into account.

In addition, the authors reviewed the opportunity for linkages between energy sector activities and the current USAID activities already underway in Haiti. These include:

- Hurricane Jeanne Reconstruction Program (HJR) Agriculture Rehabilitation and Environmental Stabilization Project;
- Hillside Agriculture Program;
- USAID-Haiti's Microfinance Program; and
- Haiti-Reforestation Strategy.

At the present time, specific recommendations are not offered in this document due to the desk study nature of this assignment and report. Further, the authors feel that for a relevant set of recommendations to be developed, a group of specialists (at a minimum: a power engineer, rural energy specialist, power finance specialist, and a regulatory expert) should conduct an assessment mission, meeting with Haitian government officials, development agencies (in Haiti), and others directly engaged in rehabilitation of energy assets in Haiti. Based on this approach, more accurate activities could be recommended to the USAID Mission in Haiti.

Assistance concepts currently under review are the following priority and secondary activities:

Priority Activities (those that can be implemented in the near-term):

- Development of a vender micro-credit program for improved energy technologies;
- Renewal of the CARE cookstove initiative
- Improvement of rural access to water through fixing damaged water pumps and power generation systems;
- Active participation and possibly coordination of the Interim Cooperative Framework (ICF/CCI) Energy Thematic Group;
- Provide financing and/or technical cooperation/assistance to CIDA Common Investment Fund; and
- Promotion of rural energy cooperatives (NRECA Model);

Secondary or Longer-Term Activities

- Promotion of hydroelectric generation; and

- Development of small-scale biomass power generation systems for industrial and commercial power users;
- Forest conservation and land-use program in hydroelectric facility watershed areas;
- Support in reforming the Haitian energy regulatory system and EdH;
- Work cooperatively with other donors to restructure EdH; and
- Finance the implementation of EdH's five-year management contract.

The table below outlines some of the basic concepts which have been discussed to date. Suggestions have been prioritized based on importance to the rehabilitation of the Haitian energy sector (Table 4 & Table 5).

Table 4: Areas for Possible USAID Assistance, Priority (near-term activities)

Assistance Concept	Comments
Charcoal Use Reduction Renewed support for the CARE cookstove initiative. Alternately and after assessing results, consider leveraging past activities with direct assistance, applying lessons learned from original program. CARE's program included marketing, training and demonstration to promote the purchase of more efficient charcoal, LPG, and kerosene stoves in the Port-au-Prince Area. CARE is interested in further promotion of these technologies in a new phase of the program not currently funded.	<ul style="list-style-type: none"> • Purpose/goal: Direct method to reduce charcoal and fuel-wood consumption. • Scale: Easily scaleable by initially targeting one city/town and, as financing becomes available, the program can be expanded to new cities. • Cost: Approximately \$300,000 for marketing, training and manufacture equipment, but dependent on scope. • Timeline: Near-term • Link to current Mission activities: Previously financed under the USAID Energy and Environment Program (finished in 2004).
Donor Cooperation/ Reconstruction Provide financing for <i>CIDA Common Investment Fund</i> . Reproduce the successful CIDA-Jacmel Generation/Distribution Model in secondary cities, such as Les Cayes, Cap Haitian and Gonaives. CIDA is designing the Fund with the purpose of cooperating with other donors and is looking for financial partners. CIDA has committed CAN\$ 20 million to this activity. Alternately, USAID could provide technical assistance to leverage the fund.	<ul style="list-style-type: none"> • Purpose/goal: Finance small and medium capital investment projects to return electricity to secondary cities. • Scale: Dependent on investment. • Cost: \$1 – 4 million. • Timeline: Near- and Medium-term • Link to current Mission activities: No direct link with current Mission activities, but potential opportunity for the Development Credit Authority (DCA).
Rural Electrification Promotion of rural energy cooperatives (NRECA Model). NRECA is currently working in one town, Pignon (approx. pop. 30,000) to develop an electricity cooperative to supply and distribute power. NRECA currently has 50	<ul style="list-style-type: none"> • Purpose/goal: Promote the COOP model and provide electricity in small communities outside of the EdH distribution grids. • Scale: Incremental in nature, can be implemented in staged process with targeted small communities. • Cost: \$1.0 – 2.0 million initially with a possible annual cost.

Assistance Concept	Comments
customers and is seeking funding to increase distribution.	<ul style="list-style-type: none"> • Timeline: Near- and Medium-term • Link to current Mission activities: No direct linkages to current activities.
<p>Finance Development of a vender micro-credit program for improved energy technologies. Would support more efficient cookstoves, small-scale renewable systems and access to cleaner burning LPG or kerosene.</p> <p>Could engage micro-finance providers already working with USAID and the National Association of Haitian Microfinance Institutions (ANIMH).</p>	<ul style="list-style-type: none"> • Purpose/goal: Micro-credit program would support activities (such as CARE described above) to promote cleaner fuel technology programs. • Scale: Easily scalable. • Cost: Variable. Not yet determined. • Timeline: Near- and medium-term • Link to current Mission activities: Potential linkages to the USAID's Financial Service Network for Entrepreneurial Empowerment (FINNET) project being implemented by Development Alternative International and the USAID-Haiti's Microfinance Program
<p>Rural and Agricultural Sector Support Improvement of rural access to water though fixing damaged water pumps and power generation systems.</p> <p>Secondary opportunity to assess options to switch from diesel or electric pumps to gravity, solar, or wind pumping systems.</p>	<ul style="list-style-type: none"> • Purpose/goal: Rehab of water pumps in agricultural areas to expand access to arable land. Program would initially focus on Gonaives Plain with option to expand to other irrigated areas. • Scale: Scale would be dependent on the number of pumps (30-40 pumps). • Cost: Variable. Not yet determined. • Timeline: Near-term • Link to current Mission activities: Linkages to the Hurricane Jeanne Reconstruction Program (HJR) being implemented by Development Alternatives International. Linkages to the Hillside Agricultural Program (HAP)
Donor Coordination/Reconstruction Active participation and possibly coordination of the Interim Cooperative Framework (ICF/CCI) Energy Thematic Group	<ul style="list-style-type: none"> • Purpose/goal: Help to ensure that independent donor organizations are working efficiently and not repeating already completed activities. • Scale: Highly variable depending on specific activities identified. • Cost: \$150,000 - \$300,000 per year • Timeline: Near-term • Link to current Mission activities: Already working under the ICF/CCI framework by purchasing fuel for Port-au-Prince generation units. This activity would offer USAID a way to transition out of this activity but still be engaged in the ICF/CCI.

Table 5: Areas for Possible USAID Assistance, Longer-term activities)

Assistance Concept	Comments
<p>Donor Cooperation/ Regulatory Reform</p> <p>Support in the reform of the Haitian energy regulatory system and EdH. This process will involve many steps, all of which USAID could finance in cooperation with other donors. Two ideas are presented below.</p> <p>This activity should only be undertaken if one of the multilateral banks participates in the restructuring of EdH (WB, IFC or IDB).</p>	<ul style="list-style-type: none"> • Purpose/goal: Address systematic problem in Haitian energy sector. Transform EdH into a viable entity. • Scale: Specific activities must be identified for USAID. • Cost: \$1-10 million. • Timeline: Long-term • Link to current Mission activities: Provide technical advice to EdH. In addition, outside expertise is also needed at the Ministries to ensure better management and establishment of a free and fair regulatory system to supervise all the necessary power, fuel and lubricant purchasing transactions.
<p>Donor Cooperation/ Regulatory Reform</p> <p>Work cooperatively with other donors to restructure EdH. The ICF/CCI plan currently calls for the identification and installment of an outside firm/international utility to take over complete management authority for EdH.</p>	<ul style="list-style-type: none"> • Purpose/goal: Address systematic problem in Haitian energy sector. Provide EdH & GoH with a senior advisor to facilitate the process of implementing the management contract. • Scale: Other donors would take on related activities. • Cost: \$0.3 – 0.8 million over three years • Timeline: Long-term • Link to current Mission activities: No direct linkages to current activities.
<p>Donor Cooperation/ Regulatory Reform</p> <p>Finance the implementation of the EdH five-year management contract.</p> <p>This activity should only be undertaken if one of the multilateral banks participates in the restructuring of EdH (WB, IFC or IDB). There will be a need for grants/loans to finance the capital investment program.</p>	<ul style="list-style-type: none"> • Purpose/goal: Address systematic problem in Haitian energy sector. Provide EdH with a competent management team. • Scale: Other donors would take on related activities or possibly contribute to this activity. • Cost: Estimate \$10 – 15 million over five years. • Timeline: Long-term. • Link to current Mission activities: No direct linkages to current activities.
<p>Rural Electrification</p> <p>Promotion of hydroelectric generation in the north and northeast.</p> <p>Numerous rivers have yet to be tapped for their hydro electric potential (potential is estimated at 66 MW).</p> <p>Opportunities for micro-hydro (under 250 kW) schemes or larger (mini-hydro, under 5 MW) schemes to meet village and town needs.</p> <p>Numerous facilities also in need of rehabilitation or upgrades.</p>	<ul style="list-style-type: none"> • Purpose/goal: Provide alternative to polluting fuels or EdH grid. • Cost: <ul style="list-style-type: none"> Micro-hydro: <\$5,000/unit (installed cost approx. \$1,500 per kW) Mini-hydro: \$100,000-650,000/unit • Scale: Scalable based on number and size of units. • Timeline: Near- and Medium-term • Link to current Mission activities: No direct linkages to current activities.

Assistance Concept	Comments
<p>Economic Development Installation of new thermal generation.</p> <p>Rehabilitation of many of the existing generating units will not be cost effective. To maintain the level of usage, the retired generating units need to be replaced with new and more efficient units.</p> <p>Development of small-scale biomass, diesel, or bio-digester/ gasification power generation systems for industrial and commercial power users (Demonstration Project). An example is: introduction of farm-, communal- and village-level methane generation, fed by crop residues, animal manure and possibly domestic wastes. The various agricultural residues from small farm agricultural operations producing crops such as coffee, mangoes, sugarcane, rice, corn, sorghum and wood could easily provide the feedstock for methane generation at the farm and household level – an approach that would also immediately reduce pressure on remaining forest resources, promote recovery of arable land, reduce situation of hydroelectric impoundments, and provide a far more cost-effective and time-saving means of providing fuel for cooking and heating to the poor.</p> <p>Such an approach is currently in use throughout India, China, and to a lesser extent, other countries in the form of dome, floating barrel and bladder-based technologies.</p> <p>Note: A minimum requirement for the projects is to be viable financially, generating income or saving costs.</p> <p>Solar Photovoltaic may also be appropriate for specific sites at a cost of USD 0.12 to 0.20 per kWh; need to review solar radiation; requires very little operation & maintenance.</p>	<ul style="list-style-type: none"> • Purpose/goal: Provide commercial/industrial electricity consumers with an alternative to high-priced diesel. Work with industrial and commercial community to implement distributed generation systems. • Cost: <ol style="list-style-type: none"> 1. \$650,000 – 1,000,000 per installed kW for diesel distributed generation schemes 2. 1,000,000 to 1,500,000 per installed MW for biomass distributed generation schemes 3. \$125,000 - 200,000 for demonstration village-level bio-digester/gasification methane generation • Scale: Incremental in nature, can target most needy sectors. • Timeline: Near- and Medium-term • Link to current Mission activities: Linkages to the Hurricane Jeanne Reconstruction Program (HJR) Agriculture Rehabilitation and Environmental Stabilization Project and the Hillside Agriculture Program.

Assistance Concept	Comments
<p>Forest Conservation/Afforestation Forest conservation and land-use program in hydroelectric facility watershed areas. Specifically, management of the forest resources' hydroelectric reservoirs to reduce soil runoff and the subsequent silting of the reservoir (Target: Péligré).</p> <p>Note: This program should only be a priority if the decision is made to move forward with the hydroelectric facility's rehabilitation by the government or another donor agency.</p>	<ul style="list-style-type: none"> • Purpose/goal: Support sustainable rehabilitation (and expansion of capacity) of the Péligré hydroelectric plant. Would result in improved power service to Port-au-Prince. Secondary benefit: reducing the risk of flooding in the Artibonite plain. • Scale: Program could be implemented on a staged basis but the entire program would have to be completed to produce the required benefit to the hydro facility. • Cost: Uncertain, but at a minimum will be several million dollars. • Timeline: Long-term • Link to current Mission activities: Linkages to the Hillside Agriculture Program and the Haiti -Reforestation Strategy.

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Annex 2: Donor Activities

This section outlines the major energy sector-related activities of the key donor organizations currently operating in Haiti. These include: AfD, CIDA, Gtz, the Inter-American Development Bank (IDB), the International Finance Corporation (IFC), the Organization of American States (OAS), the World Bank, UNEP and UNDP.

Agence Française de Développement (AfD)

In November 2004, AfD granted the Haitian government a financing of €6,000,000 (USD 8.0 million) including €2,500,000 (USD 3.33 million) intended for the repair of damaged engines at the power station in Carrefour (near Port-au-Prince), in order to guarantee a production of 35 MW. This work will be completed by SEMT Pielstick (the company that manufactured the generation units), and should be completed by mid-2006. The remaining €3,500,000 will be devoted to rehabilitation of the drinking water system in the Port-au-Prince area.

AfD also provided financing for studies and other project preparation work which is being implemented by the Haitian government (started in September 2004). This included a major assessment of the Haitian electric sector. This study, carried out by EdF, is an analysis of Haiti's electric sector, and proposes a series of recommendations responding to immediate emergencies. AfD will present this report once they have completed their initial review.

Canadian International Development Organization (CIDA)

CIDA currently has one project underway, Jacmel Power System Rehabilitation Project, and one under development, a Common Investment Fund to support the rehabilitation of the power system in secondary cities.

Jacmel Power System Rehabilitation Project

This CIDA project provided technical assistance and equipment (such as generators and lines) to allow the local offices of EdH to produce and distribute electricity in and around Jacmel. Training was given to maintain the power system and to manage it in a decentralized way. The project consolidated the administrative, financial and technical management of Jacmel's electrical system in the hands of local EdH officials. This project has enabled EdH to meet the electricity needs of the local population of about 35,000 people. As a result of the project, Jacmel is the only area in Haiti that has electricity 24 hours a day. The goal of this project was to allow EdH Jacmel to reach and maintain electrical tariff levels that would ensure the provision of electricity 24 hours a day without a need for any financial transfers from EdH headquarters. While the project

has met with some setbacks, it has a reputation of being the most successful energy sector activity in recent years.

CIDA Power Sector Common Investment Fund

As mentioned above, between 1999 and 2003, the Canadian International Development Agency (CIDA) financed a project to rehabilitate EDH assets in the town of Jacmel. After implementation of the project, the billing collection rate went from 42 percent to 92 percent. The results of this program indicated to CIDA that the *Jacmel model* could work in other secondary cities (they have now targeted Les Cayes as the next location). To finance the expanded use of this model, CIDA has created a common investment fund with an initial capitalization of \$CAN 20 million (USD 16.5 million). Under this model, CIDA will finance the upgrade of new infrastructure and equipment purchase in order to reduce technical and non-technical losses, resulting in improved electricity service to the public.

A private sector entity will manage the Fund, act as executing agency, and identify and implement investment activities. This executing agency will also provide the necessary technical expertise to EdH and other local entities to improve energy services in the selected cities. Under this arrangement, the investment decision-making authority will be devolved from EdH headquarters in Port-au-Prince to local offices, including separate bank accounts.

One of the functions of the common investment fund is to allow donors and financial investors to contribute to the improvement in infrastructure (alongside CIDA). The participation of additional donors and investors would enable CIDA to more holistically approach the needs of the community. The Fund management board will be composed of representatives of CIDA, other donors, representatives of EDH, Bureau des Mines et de l'Energie, and CMEP.

Timetable for the implementation of this project:

- **Beginning of April 2005:** Finalization of the approval documents.
- **End of April 2005:** The project's approval.
- **May 2005:** The negotiation of the agreement between Canada and Haiti for the project financed by CIDA and the "multi-party" agreement between Haiti, Canada, the donors and financial investors.
- **Beginning of June 2005:** The request for tenders will be launched.
- **Beginning of September 2005:** Evaluation of the offers will commence.
- **Beginning October 2005:** The memorandum confirming the name of the chosen company will be released to the minister responsible for CIDA.
- **Beginning of November 2005:** Release of the winning team.
- **Beginning of December 2005:** The winning company will sign the contract.

- **January 2006:** Target date for the mobilization of the CIDA project.

Deutsche Gesellschaft für Technische Zusammenarbeit (GTZ) GmbH

The German Government is participating in the ICF process. Repeated requests for information were not answered.

European Commission/European Union

The EU has a team of development specialists in Haiti specifically looking at infrastructure rehabilitation. They currently have two general activities: (1) cooperation with CIDA on their Common Investment Fund (they are going to provide capital to the Fund for rehabilitation projects, specifically €1.0MM for Les Cayes and €2.0MM for a project in the north), and (2) upgrade of the financial accounting system for EdH and a “pre-audit” can be conducted (this work is a precondition to the World Bank financing a restructuring activity for EdH). The accounting work is currently being implemented and an international audit firm has been selected to conduct financial audit.

The Inter-American Development Bank (IDB)

In January 1999 IDB had intended to support the GOH with a technical cooperation program and a \$40 million public loan to aid in the privatization of EdH. In March 1999 IDB suspended all loan preparatory activities. The IDB, in September 2004, provided a \$200,000 emergency grant to help Haiti in the wake of the massive floods caused by Hurricane Jeanne. The IDB is now beginning to re-enter Haiti and is focusing on roads and flood warning, while the energy sector is left for later.

The most recent energy sector activity proposed by the IDB was a technical cooperation project to help small energy service providers to increase the electricity coverage in areas not covered by the EDH. This idea never moved past the concept stage and was not financed. It is possible that with Trust Fund monies, IDB could implement this idea.

Previous to that activity, IDB supported, in January 1999, the development of a modernization strategy for EdH and the energy sector. Briefly summarized, this recommendation called for a private sector entity to manage EdH. First, after an initial transition period, a private company would be appointed for three years to manage and revitalize the company. Second, after the first three years, the GOH would enter into a long-term lease (concession) arrangement for EdH's entire operation, with the GOH as the lessor and a private sector entity as the lessee. At the time, a draft “Electricity Law” was under development, which incorporated the management contract and the lease contract concepts, and provided the overall regulatory framework for the provision of electricity in Haiti.

Its portfolio of soft loans currently has some \$337 million in undisbursed funds.

The International Finance Corporation (IFC)

The IFC signed an agreement several years ago with the Government of Haiti stating that IFC would act as an advisor for the privatization of nine state-owned enterprises, including the energy sector and EdH. This work did not move forward.

Organization of American States (OAS)

OAS does not have any ongoing energy sector-related work in Haiti. The OAS is quite involved with Haiti on several sustainable development areas, but not specifically in the energy sector.

World Bank

The World Bank disbursed \$46m in budget support in January and has plans to open an office in March.

EU/EC representatives reported that the World Bank has a program (Programme d'Appui à la Gouvernance Économique, PAGE, or the Economic Governance Reform Operation Project) to reorganize government financial management, which will have a direct impact on the management of EdH. The program will widely support: fiscal management, budget processes and financial control; public sector procurement; anti-corruption strategy; efficiency and transparency in the management of public enterprises.

The World Bank is also implementing a technical support activity for park and forest protection (ATPPF in French) for the country's limited forestry reserves.

The World Bank, through ESMAP, is presently completing a study on wood and woodfuel consumption for Haiti, which will lead to the development of a Bank strategy to support the recommended activities that may evolve from the strategy. In April, they will be holding a series of focus group meetings and then will present the results in a seminar in June.

UNEP and UNDP

UN activities mainly focus on humanitarian issues in Haiti. Both organizations have been actively engaged in the ICF/CCI process.

Annex 3: Contact List

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